REMARKS

I. Specification Objections

In the Final Office Action dated July 29, 2009, the Examiner objected to the specification based on the following informalities: the Examiner asserted that there is no system 204 in Fig. 2 as described in paragraph [0033] and no block 22 in Fig. 2 as described in paragraph [0034].

The Applicant thanks the Examiner for identifying these informalities. The Applicant has therefore amended the specification to correct these informalities. The Applicant submits that such amendments do not constitute matter and further place the Application in condition for allowance. The Applicant respectfully requests that the aforementioned objection to the disclosure based on such identified informalities, be withdrawn.

II. Claim Objections

In the Final Office Action dated July 29, 2009 the Examiner objected to claims 7 and 8 because of the following informalities: the Examiner indicated that claims 7 and 8 are dependent claims, but there is no claim number(s) indicating which claim is to be depended upon.

The Applicant thanks the Examiner for identifying these informalities. The Applicant has therefore amended claims 7 and 8 by including claim number "6" to identify the claim to be depended upon. The Applicant respectfully requests the objection to the claims based on the aforementioned informalities be withdrawn.

III. Claim Rejections – 35 U.S.C. § 112

In the Final Office Action dated July 29, 2009 the Examiner rejected claims 10-22 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Examiner argued the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the

claimed invention. The Examiner argued the limitation of "a transformation module provided within said iterative controller for automatically reducing said particular dimensional order based on determining which color value among said plurality of color values has attained said gamut limit" is not supported by the original disclosure.

The Applicant respectfully disagrees with this assessment. The Applicant respectfully requests the Examiner review paragraph [0011] of the specification. From the language of the rejection, it appears the Examiner's argument is that the disclosure fails to disclose a transformation module <u>within</u> an iterative controller. However, paragraph [0011] very clearly describes the transformation or compensation occurring within an iterative controller. Thus, the limitation is specifically disclosed in the specification. As such, the Applicant respectfully requests the rejection of 35 U.S.C. §112 first paragraph, be withdrawn.

The Examiner rejected claims 1-8 and 10-22 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. The Examiner argued the phrase "particular dimensional order" is an indefinite term, based on Applicant's Remark of May 4, 2009 that "a particular dimensional order" can have different meanings or interpretations, i.e. "a particular dimensional order, typically a three-dimensional order, but alternatively can be a two dimensional order".

The Applicant respectfully disagrees with this assessment. While the Applicant stands by the original position that "as is made clear by the language of claim 10 and Applicant's specification, the 'particular order' is <u>not</u> limited to the three-dimensional case", the Applicant disagrees the claim is therefore indefinite according to 35 U.S.C. §112.

As the Examiner is well aware, §112 is intended to ensure the claims describe the art with a <u>reasonable</u> degree of precision and particularity. The definiteness of the claims should be analyzed in light of the prior art and the particular application and disclosure. *In re Moore*, 58 CCPA 1042, 439 F.2d 1232, 169 USPQ 236 (1971). This explanation shows that the §112 second

paragraph standard may be met so long as it is clear what is required for the invention to operate. The claim, as drafted, requires that the particular dimensional order be defined (i.e. that the image processing device is under the control of a particular dimensional order). That is why the word "particular" is used. Thus, it is not necessary according to 35 U.S.C. §112 that the actual dimension be recited in the claims because a skilled artisan would recognize that the particular order must be defined. Being that the specification specifically explains what is being described by the claim and that the claim is definite in requiring that a particular dimensional order be defined the Applicant respectfully asserts the claim is not in violation of 35 U.S.C. §112 second paragraph.

The Applicant therefore respectfully requests the rejection of claims 1-8 and 10-22, based on 35 U.S.C. §112 be withdrawn.

IV. Claim Rejections – 35 U.S.C. § 103

Requirements for Prima Facie Obviousness

The obligation of the examiner to go forward and produce reasoning and evidence in support of obviousness is clearly defined at M.P.E.P. §2142:

> The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

M.P.E.P. §2143 sets out the three basic criteria that a patent examiner must satisfy to establish a *prima facie* case of obviousness:

1. some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings;
2. a reasonable expectation of success; and
3. the teaching or suggestion of all the claim limitations by the prior art reference (or references when combined).

It follows that in the absence of such a *prima facie* showing of obviousness by the Examiner (assuming there are no objections or other

grounds for rejection), an applicant is entitled to grant of a patent. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443 (Fed. Cir. 1992). Thus, in order to support an obviousness rejection, the Examiner is obliged to produce evidence compelling a conclusion that each of the three aforementioned basic criteria has been met.

Applicant further notes that the U.S. Supreme Court ruling of April 30, 2007 (*KSR Int'l v. Teleflex Inc.*) states:

> "The TSM test captures a helpful insight: A patent composed of several elements is not proved obvious merely by demonstrating that each element was, independently, known in the prior art. Although common sense directs caution as to a patent application claiming as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the art to combine the elements as the new invention does."
>
> "To facilitate review, this analysis should be made explicit."

The U.S. Supreme Court ruling states that it is important to identify a *reason* that would have prompted a person to combine the elements and to make that analysis *explicit*.

Shimizu in view of Mahy

Claims 1-5, 9-12, 15-16, and 19-22 stand rejected under 35 USC 103(a) as being unpatentable over Shimizu et al, US 7,167,277 (hereinafter Shimizu), in view of Mahy, US 5,832,109 (hereinafter Mahy).

Regarding claims 10 and 11, the Examiner argued that Shimizu discloses a system (citing Fig. 18 and col. 28, lines 5-47) comprising: a plurality of color values corresponding to CMY color data value (citing col. 2, lines 28-59 and Fig.5, col.10, lines 10-35) automatically provided as input to an image processing device (citing Figs. 5, 18, and 19; col. 10, line 12-16), wherein said image processing device is under a control of a particular dimensional order (arguing processing in three-dimensional arrays, citing col. 13, lines 51-65).

The Examiner further argued that a color sensor (arguing measurement of L*a*b* values indicates a color sensor must be used for

color measuring, citing col. 11, lines 65-67 and col. 12, lines 1-19) for dynamically determining which color value among said plurality of color values has attained a gamut limit (arguing Shimizu discloses a flow chart or algorithm which has a steps to determining shortest distance from boundary of color gamut in Figs. 7 and 9, judging whether color value is near the color gamut boundary which is actively or dynamically performed, citing col. 13, lines 5-37 and col. 15, lines 41-66) is taught by Shimizu.

The Examiner also argued that Shimizu teaches a color sensor (arguing measurement of L*a*b* values indicates that a color sensor must be used for color measuring, citing col. 11, lines 65-67 and col. 12, lines 1-19) for dynamically determining which color value among said plurality of color values has attained a gamut limit (arguing Shimizu discloses a flowchart or algorithm which has steps to determine shortest distance from boundary of color gamut, citing figs. 7 and 9, judging whether color value is near the color gamut boundary which is actively or dynamically performed, citing col. 13, lines 5-37 and col. 15, lines 41-66); an iterative controller (arguing "iterative controller", a controller processes an iteration loop(s); Shimizu discloses an example of the controller of a printer processes color value for each pixel, citing col. 1, lines 24-35, and the process of figs. 7, 12 and 13 for generating a color conversion table for printers for converting L*a*b* values to CMY values indicate multiple iteration processes, citing col. 11, line 60 to col. 12, line 42, concluding the controller of a printer must perform iterative loops in the processes of Figs. 7, 12, and 13); and a transformation module (arguing conversion table) provided inside said iterative controller (arguing a conversion table for printer/controller to convert L*a*b* values to CMY values and thus conversion table is indeed within the controller; citing col. 11, line 60 to col. 12, line 42; arguing in addition, conversion unit or module converts color data to color data inside a target color gamut and is within the color conversion apparatus 10 and is controlled by a printer controller citing Fig. 17, col. 27, lines 37-58).

The Examiner admitted that Shimizu fails to teach a transformation module for automatically reducing said particular dimensional order based on

determining which color value among said plurality of color values has attained said gamut limit, thereby providing improved control for colors that are located external to said gamut. The Examiner, however, argued that Mahy teaches such a transformation module, arguing Mahy teaches that a transformation module for automatically reducing said particular dimensional order based on determining which color value among said plurality of color values has attained said gamut limit (arguing Mahy discloses an example mathematical model of 3-ink process with one color value C1 reaches its limit at 0, dimensional order of 3-ink process is automatically reduced to a 2-ink process because an n-ink process is completely characterized by its colorant gamut with a number of colorant limitations; citing col. 14 lines 50-64 and col. 1 lines 49-58), thereby providing improved control for colors that are located external to said gamut (citing col. 7, lines 45-48).

The Examiner argued Mahy is combinable to modify Shimizu reference for reducing dimensions (citing col. 13, lines 5-15) and by combining Mahy's teaching with Shimizu reference, dimensional order of 3-ink can be reduced to a two-ink process, which can improve the out of gamut color control process

The Examiner therefore asserted that it would have been obvious for one skilled in the art to modify Shimizu to include a transformation module for automatically reducing said particular dimensional order based on determining which color value among said plurality of color values has attained said gamut limit, thereby providing improved control for colors that are located external to said gamut, taught by Mahy. The Examiner argued the motivation for doing so would have been to improve the control of an L*a*b* value of a certain color which is outside a target color gamut and hence for better image reproduction quality, and further the mathematical model provided by Mahy 109 could be implemented by one another with predictable results.

The Applicant respectfully disagrees with this assessment for several reasons. First, the Shimizu reference does <u>not</u> teach or suggest "automatic input". The newly cited material (col. 10 lines, 12-16 and Fig. 5) still <u>fails</u> to

teach or suggest automatic input. The Examiner reasoned that since the input was not manually performed, it must be automatic. However, there is nothing in the reference to indicate that the input was not manual. The Applicant has carefully reviewed Fig. 5, which does show an input but absolutely fails to indicate, in any capacity, that the input is automatic. As the Examiner is well aware, each and every specific limitation of the rejected claims must be taught or suggested in the reference itself in order to establish prima facie obviousness. The Examiner has continued to assert the input is automatic because it is not manual, without the support of any citation in any reference for that conclusion.

The Examiner responded to this argument by again citing step S1 in Fig. 5. The Examiner argued step S1 states "Inputs an L*a*b* value outside color gamut", and asserted this "clearly states what the input means". Applicant agrees that this clearly states the there is input of an L*a*b* value. However, the Applicant absolutely disagrees that offers any teaching or suggestion that such an input is automatic. It is a distant stretch of the limits of logic to assert that the words "Inputs an L*a*b* value outside color gamut" written inside a flow chart box somehow teaches or suggests that the input described is automatic. The clear language of the reference is absolutely devoid of any suggestion that the means of input is automatic as specifically claimed in the present invention.

Finally, Figs. 18-19 have literally no relationship to the present discussion as both figures illustrate computer hardware configurations. Nothing about these figures is even remotely related to the question of whether or not the Shimizu reference provides automatic input as described in the present invention.

The Applicant also respectfully disagrees that the use of a color sensor to determine which color has attained a gamut limit has been taught. First, the reference fails to teach or suggest the use of a color sensor. At col. 12, lines 2-9 the reference discusses that color values are distributed "in a grid shape based on the measurement value of a patch outputted from the printer" and that "L*a*b*" values [are] obtained by measuring the patch

outputted from the printer". The Examiner argued this language necessitates the use of a color sensor. However, without a specific explanation, there is no reason to assume a color sensor is used. For example, color may be measured using a color chart, where standardized colors are used to determine color reproduction. This seems particularly likely as the entire Shimizu invention is premised on the use of color conversion charts. Likewise, the printer may be printing a measured color and the patch pre-set to a defined color value. While this is meant to highlight only a few examples, the point is that the reference does not directly teach the use of a color sensor.

The Examiner again appears to misunderstand the Applicant's argument. The Examiner continues to cite material in the reference that teaches the creation of a color conversion table. The present invention never teaches discusses, considers, describes, or even contemplates a color conversion table in any capacity. The color conversion table does not read on the present invention.

Further, assuming the reference does teach a color sensor (which the Applicant still asserts it does not), that color sensor is not used to determine which color has attained a gamut limit as claimed in the present invention. The Examiner cites col. 11, lines 65-67 and col. 12, lines 1-19 of Shimizu. The Applicant respectfully asserts that the Examiner's rejection underscores the differences between the present invention and the reference. The Examiner first argues that the creation of the color conversion table indicates a color sensor is used for measuring color citing col. 11, line 65 to col. 12, line 19 . Note, the Applicant is claiming the color sensor is used to determine which color has attained gamut limit. The Examiner then cites an entirely different section of the reference arguing this material teaches an algorithm to determine distance from the gamut boundary. Logic thus dictates that it is impossible that the alleged color sensor in the reference is used in the same capacity as the color sensor in the present invention. This simple distinction by itself is sufficient to establish that the present invention is not made obvious by the Shimizu reference.

The Examiner's response to this argument reminded the Applicant to consider the scope of the Shimizu reference citing the Shimizu abstract. Surely the fact that two inventions share a similar goal does not make one invention obvious in view of the other. For example, both a car and a bicycle are intended to foster transportation. In fact, both are used basically to achieve the exact same end. Both share some very similar parts including wheels, tires, a steering mechanism, a drive train, and a seat. Yet no one would claim one is obvious in light of the other because they don't operate in fundamentally the same capacity. Likewise, even assuming both the Shimizu and present invention share a color sensor (along with many many other inventions which use a color sensor in some capacity) and both inventions are intended to foster color conversion, the internal operation of Shimizu is completely unrelated to that of the present invention. Keeping in mind the abstract goal of both inventions, the fact that Shimizu (and the majority of the Examiner's citations in Shimizu) is fundamentally related to the use of color conversion tables, like the car and bicycle analogy, highlights the fact that the features of the present invention are not taught or suggested by the reference because they operate in a fundamentally different way.

One clear example of this is <u>how the color sensor is used</u>. The alleged color sensor in the Shimizu reference is used to create color conversion charts. This does not read on the limitation as stated in the present invention; specifically that <u>the color sensor itself</u> is used to determine if a color has reached a gamut limit.

Finally, the Examiner has verified this analysis by citing two separate elements (the color conversion table serving to measure color, and the algorithm or flowchart) as teaching the single limitation of the present invention. Even assuming the two separate citations (col. 11, line 65 to col. 12, line 19 teaching a color sensor; and Figs. 9, 7, col. 13, lines 5-37, and col. 15, lines 41-66 teaching algorithm to determine shortest distance to boundary of color gamut) do read on the present invention (which they still do not) at the very least the present invention represents a patentable non-obvious improvement over the methodology of the Shimizu reference. At

most and more likely, the Shimizu reference fails to teach that a color sensor is used to dynamically determine if a color has achieved a gamut limit, and the limitation is likewise not obvious in view of Shimizu.

The Applicant respectfully disagrees with the Examiner's contention that Shimizu teaches an iterative controller. Taking the cited material in turn, col. 1, lines 24-35 describes the way that color data, for example CMY values is used to instruct a printer how to print a color. This is fully unrelated to the iterative controller being described in the presently rejected claims. Granted the reference does discuss a "controller of the printer". However, this controller is not in any way comparable to the iterative controller described in the present invention. The referenced "controller" simply "instructs the printing head as to the amount of cyan, magenta and yellow ink that should be painted for each pixel." The presently claimed iterative controller is not used to instruct a printer on how much of each color to paint on a piece of paper. It is used to control the iterative process described in the present claims and disclosure, to reduce the particular dimensional order based on a determination of which color value among said plurality of color values has attained a gamut limit. Thus, the material cited at col. 1, lines 24-35 does not read on the present invention.

Further, Fig. 7, 12, and 13 are flow charts illustrating a method for generating color conversion tables. Indeed, the Shimizu reference specifically states that the flow chart in Fig. 7 is used generate "a color conversion table for printers converting L*a*b* values to CMY values". Likewise, Figs. 12 and 13 are flowcharts used to generate color conversion tables. However, the use of color conversion tables is not a feature of the presently claimed invention. Thus, even pretending the reference did teach an iterative controller, it is being used in a wholly unrelated capacity to that of the present invention. This is a clear example of a case where at the very least, the present invention represents a new principle of operation when compared to the Shimizu reference. Based on the reference's clear explanation of all the material cited as pertaining to the creation of color

conversion charts, it is clear the iterative controller claimed (which is used to reduce dimensional order) is not used for the same purpose.

The Examiner has repeatedly admitted Mahy simply constitutes a statement of the fact that a mathematical space of n dimension's can be defined by its boundaries and that said boundaries have a dimension n-1. This surely does not teach, as the Examiner suggests, using a transformation module to determine colors at or beyond a gamut limit. The language cited by the Examiner is, in essence, a scholarly lecture on the meaning of "color gamut" and the geometric properties of mathematical spaces followed by a conclusion that this language teaches or suggests use of a transformation module to determine colors that have reached a gamut limit. The fact that the word "transformation" appears in the reference is not sufficient to teach a transformation module as taught by Applicant's invention. A transformation and transformation module are not the same. In the context of Mahy, "transformation" is only being used as part of the definition of a color gamut. The Applicant has claimed a transformation module. Mahy simply fails to teach a module.

The Applicant respectfully notes the Examiner has not offered any explanation of why this argument was not persuasive. The Mahy abstract is provides further evidence of the scope of the Mahy reference. The abstract states Mahy is "[a] method and an apparatus disclosed to obtain a color gamut description of a multidimensional color reproduction device." This clearly indicates, as the Applicant has repeatedly asserted, that Mahy is simply a method for describing a gamut, not a module for transforming a gamut.

The Applicant also respectfully asserts the Examiner has not adequately taken into account the relationship between the iterative controller and transformation module. As the Examiner will note, the iterative controller controls the transformation module which is provided within the iterative controller thereby operating iteratively to reduce said particular dimensional order based on a determination of which color value among said plurality of color values has attained a gamut limit. The

Examiner argued that the iterative controller is taught by Shimizu but the transformation module (which, as presently claimed, is being operated iteratively by the iterative controller), is taught by Mahy. However, there is nothing in either Shimizu or Mahy suggesting the limitation as claimed that the transformation module is within the iterative controller (and thereby being iteratively controlled). In other words it is impossible for either reference to teach the specific limitation as claimed when Shimizu fails to teach or suggest a transformation module, and Mahy fails to teach or suggest an iterative process.

Finally, per the decision in KSR Int'l v. Teleflex Inc., it is not enough that the Examiner identify all elements of Applicant's invention in past references (which the Applicant suggests the Examiner has still failed to do); the Examiner must also <u>explicitly</u> explain the reason one of ordinary skill in the art would have combined the referenced inventions in the way they are taught in Applicant's invention. However, the Examiner has failed to offer any citation which explains the motivation for the combination of Shimizu and Mahy as a means for providing each and every claim limitation of Applicant's claims. The Examiner has failed to cite any material to explain <u>how</u> the combination of elements supposedly taught by Mahy would improve the Shimizu invention. Some actual citation to the references to explain the motivation for their combination is necessary under the *KSR Int'l* holding.

The Examiner responded to this argument by claiming:

> It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Shimizu' 277 reference to include a transformation module for automatically reducing said particular dimensional order based on determining which color value among said plurality of color values has attained said gamut limit, thereby providing improved controls for colors that are located external to said gamut as taught by Mahy' 109 reference. The motivation for doing so would have been to improve the control of an L*a*b value of a certain color which is outside a target color gamut and hence for better image reproduction quality, and further the mathematical model provided by Mahy'109 could be implemented by another with predictable results

This explanation does not address the primary problems with the combination of Shimizu and Mahy. As evidence, consider that the Examiner

specifically stated <u>Shimizu fails to teach a transformation module</u>. This is because the Shimizu invention functions without the need for a transformation module. Thus, at the very least, it is the Examiner's burden to explain, through citation to the references, <u>how</u> stuffing a transformation module into the already functioning Shimizu invention would improve that invention.

In response, the Examiner cited col. 13, lines 5-15 of Shimizu which discusses various methods used to create the color conversion table illustrated in fig. 7. This citation does not explain how a transformation module would improve the Shimizu invention. The Examiner has only suggested the result of such a combination (improved control of certain L*a*b colors) without explaining <u>how</u> the combination could possibly yield such a result. Likewise, the Examiner claims Mahy teaches a transformation module for automatically reducing a particular dimensional order (which it does not). Yet combining that idea with Shimizu reference would not yield any improvement as Shimizu, by the Examiner's own admission, operates without a transformation module.

The method for achieving the color conversions described in Shimizu is accomplished using a color conversion table, and <u>by the Examiner's admission does not require automatically reducing the particular dimensional order</u>. Once again, at the very least, the Examiner must explain some motivation for such a combination in light of the overwhelming evidence that forcing the Mahy and Shimizu inventions together would not improve either invention. In other words, the present invention transcends the simple mashing of Shimizu and Mahy. The present invention is a novel, non-obvious creation not made obvious by simply combining Shimizu and Mahy.

Further, the Examiner claims the combination could yield predictable results without citing anything explaining <u>how</u> or what that predictable result would be. <u>The Applicant respectfully asserts the predictable result would be the inclusion of a useless transformation module in an already functioning invention yielding no improvement to either the Shimizu or Mahy invention.</u>

Based on the arguments presented above the Applicant respectfully requests the rejection of claims 10 and 11, based on 35 USC 103, be withdrawn.

Regarding claim 12, the Examiner argued "Shimizu teaches wherein said particular dimensional order comprises a three-dimensional order" (arguing "color conversion table is used to store the calculated three-dimensional arrays of C[L][a][b], M[L][a][b] and Y[L][a][b] citing col. 12, lines 30-42).

The Applicant notes if an independent claim is not obvious any claim dependent on that claim is also not obvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). The Applicant respectfully submits Claims 3 and 12 are dependent claims. Therefore, based on the arguments made in favor independent claim 10, the Applicant requests the rejection of claim 12 be withdrawn.

Regarding claims 15 and 16 The Examiner admitted Shimizu does not teach a transformation module where said module further comprises a transformation module for reducing said three-dimensional order to a one dimensional order.

The Examiner argued Mahy teaches such a transformation (arguing Mahy discloses a mathematical model showing how a 3-dimensional order is reduced to 1-dimensional order, citing col. 12, lines 36-64).

Therefore, the Examiner argued it would have been obvious to one of ordinary skill in the art at the time of invention to have modified Shimizu to include a transformation module that reduces a three-dimensional order to said one-dimensional order as taught by Mahy because it helps to determine the exact boundaries of the color gamut per lightness level from a set of discrete points (citing col. 4, lines 17-43). Therefore, by combining Shimizu with Mahy, a predicable success of controlling out-of-gamut memory and index color can be achieved.

The Applicant respectfully disagrees with this assessment. As previously discussed, the material cited in Mahy absolutely fails to discuss a <u>transformation module</u> in any capacity. Further, the material does offer a

very broad generalized description of some of the qualities and properties of color gamut boundaries and the Neugebauer model. This literally has no relation to a transformation <u>module</u> that specifically takes a three-dimensional order to a one-dimensional order. The Applicant respectfully reminds the Examiner the reference must actually teach or suggest each and every specific limitation of the claim in order to establish prima facie obviousness. A simple description of the properties of color gamut boundaries and the fact that the Neugebauer equations "immediately reveal that a 1-ink process transforms onto a straight line in color space" (see col. 12, lines 63-64) do not teach any of the limitations of claims 15 and 16. <u>The reference fails even to discuss a concept as foundational as a starting order of three-dimensions transformed to a finishing order of one dimension</u>. This is in part a result of the fact that Mahy is intended only to <u>describe</u> a gamut; it is not primarily a method for reducing dimensional order.

The Applicant notes that the word "transform" does appear in Mahy. However, its use is not in consideration of a reduction of a three-dimensional order to a one-dimensional order.

With respect to the first prong of the aforementioned Prima Facie Obviousness test, the Applicant reminds the Examiner that the language of the references may not be taken out of context and combined then without motivation, in effect producing the words of the claims (and sometimes, not even the words or concepts of the claims), without their meaning or context.

Therefore, the Applicant argues all the limitations of claims 15 and 16 are not taught or suggested by Mahy and that claims 15 and 16 are therefore not obvious. The Applicant respectfully requests, in light of the above argument, that the rejection of claims 15 and 16, based on 35 USC 103, be withdrawn.

Regarding claim 19, The Examiner argued Shimizu teaches a color rendering device associated with a transformation module wherein said transformation module is integrated with said image processing device (citing Figs. 6-7 and 18-19, a color conversion table for printer for converting L*a*b values to CMY values, citing col. 60 to col. 12, line 19).

The Applicant respectfully disagrees with this assessment. The Applicant concedes Shimizu does teach a system in which a color-rendering device is present. This is made clear in Fig. 19 and col. 28 lines 53-55. However, the key feature of claim 19 is that the transformation module is integrated with the image processing device. The Shimizu reference makes no mention of such integration. The material cited by the Examiner actually teaches away from such integration as it describes the printer <u>creating</u> a color conversion table. Aside from the fact that the color conversion has no place in the present invention and would serve no purpose in the present invention, a printer printing a color conversion table does not teach integration of a color rendering device and a transformation module.

As a final point, in the rejection of claim 10, the Examiner admitted "Shimizu does not explicitly disclose a transformation module for automatically reducing said particular dimensional order…". The Examiner has, in effect, admitted that no transformation module is present in Shimizu. This logically means it is impossible that Shimizu now teaches the integration of such a transformation module in a color rendering device. Therefore, the Applicant respectfully requests that the rejection of claim 19, based on 35 USC 103, be withdrawn.

Regarding claim 20, The Examiner argued Shimizu teaches an iterative controller whose iterative output is input to said color rendering device (arguing Input/Output Device 25 of Fig. 18 and Printer 32 of Fig. 19), such that said iterative output of said iterative controller reflects a plurality of compensated color values requiring correction for rendering variations thereof (arguing "the process of color transform and compensation is performed for each color value data of each pixel by the controller of a printer, citing col. 1, lines 30-40; arguing "thus the processes of figs 5-16, must repeated for each pixel color value data).

The Applicant respectfully disagrees with that assessment, the Applicant respectfully asserts the arguments presented in favor of claim 10 regarding an iterative controller apply equally against this rejection of claim 20. Specifically, the Shimizu reference fails to teach or suggest an iterative

controller, and even assuming an iterative controller was taught, the reference still fails to teach or suggest its use in the same capacity as taught by the present invention.

Further, neither the input/output device 25 nor printer 32 shows an iterative controller output as input to a color rendering device. Indeed, neither figure shows any input of any kind. Thus the Applicant respectfully asserts these figures teach "an iterative controller's iterative output is input to said color rendering device". The fact that the reference includes figures of Input/Output devices and printers has literally, no connection with the limitation of claim 20. In order for these figures to read on claim 20 they must include some indication of an iterative controller, output from that controller, and that output being used as input. None of these features of the claim are taught or suggested by Figs. 18 and 19.

Likewise, col. 1, lines 30-40 is describing how information is transferred to a printer so the printer can print. While the Applicant agrees that each pixel must be given a color that still does not suggest an iterative method. Rather that is a typical "one-shot" conversion used for each pixel. The cited material gives no indication that some output resulting from an iterative process within an iterative controller is used later as input to a printer. The citation is simply explaining that color values are sent to a printer which then prints that color at a determined pixel. Being that the referenced material fails to teach any of the salient limitations of the present claims, the Applicant respectfully requests the rejection of claim 20 be withdrawn.

Regarding claim 21, the Examiner argued Shimizu teaches that the color rendering device comprises a printer (citing Printer 32 and Fig. 19). The Applicant agrees with this assessment. However, the Applicant refers the Examiner to the above argument regarding non-obvious dependent claims (In re Fine). In light of this argument, the Applicant respectfully requests that the rejection of claim 21, based on 35 USC 103, be withdrawn.

Regarding claim 22, the Examiner argued Shimizu teaches that the color rendering device comprises a photocopy machine (arguing Input/Output device 25 of Fig. 18).

The Applicant respectfully disagrees with that assessment. While the Applicant realizes an input/output device might include a photocopy machine, it is important to note that <u>a photocopy machine is never mentioned in the Shimizu reference</u>. It is further worth noting that I/O devices include an extraordinarily large number of possible devices. Thus, it appears the specificity of this claim has not been considered, taught or suggested by the Shimizu reference. This is further evidenced by the constant reference in the Shimizu reference to printers but the lack of reference to photocopy machines.

Finally, Fig. 18 shows "a hardware environment needed to realize the method of the present invention by causing a computer to execute a program (col. 9, lines 7-10). In other words, Fig. 18 illustrates a computer system's hardware. As such, element 25 is not a photocopy machine. In fact, "input/output device 25 … includes a display, keyboard, mouse, etc. and is used to input commands or data needed…" (col. 28, lines 36-38). Element 25 in Shimizu clearly does not teach or suggest a photocopy machine.

To establish prima facie obviousness the Examiner is required to specifically cite and explain how each and every feature of the challenged invention is taught or suggested by the reference. Since nothing in any of the references suggests the use of a photocopy machine in any capacity, the Applicant respectfully asserts the Examiner has failed to establish prima facie obviousness.

The Examiner has failed to explain why this argument was not persuasive. Based on the specific language from the Shimizu reference itself, it is clear that element 25 is intended primarily as an input device used to input commands. It is clear from this language that interpreting element 25 as a photocopy machine is far beyond the intent or scope of the Shimizu disclosure. The Applicant respectfully requests that the rejection of claim 22, based on 35 USC 103, be withdrawn.

Regarding claim 1, The Examiner noted claim 1 is directed to a method claim that meets the 35 U.S.C. 101 statutory requirements. The Applicant notes this statement and appreciates the Examiner's candid assessment of the inventions patentability under 35 U.S.C. 101.

The Examiner argued Shimizu discloses a method comprising: a plurality of color values (such as L255*, a255* and b255* value, corresponding to CMY color data value citing col. 2, lines 28-59 and Fig.5, col.10, lines 10-35) as input to an image processing device (arguing "L*a*b* values based on the measurement of a patch outputted from the printer corresponding to CYM values are as input initial value; since the L*a*b values obtained and inputted in the process are not manually performed, thus data is automatically provided as input to the image processing device, citing Figs. 5, 7, 18, and 19; col. 11, line 65 - col. 12, line 19), wherein said image processing device is under a control of a particular dimensional order (arguing processing in three-dimensional arrays, citing col. 13, lines 51-65); dynamically determining which color value among said plurality of color values has attained a gamut limit (arguing Shimizu discloses a flowchart or algorithm which has a steps to determining shortest distance from boundary of color gamut in Figs. 7 & 9, judging whether color value is near the color gamut boundary which is actively or dynamically performed, citing col. 13, lines 5-37 and col. 15, lines 41-66).

The Examiner admitted Shimizu fails to teach transforming said particular dimensional order of said color which was determined to have attained said gamut limit in response to determining which color value among said plurality of color values has attained gamut limit and thereafter automatically reducing said particular dimensional order through use of a dedicated gamut mapping function allowing for an improved estimate of said color based on said reduced dimensional order, thereby providing improved control for colors that are located external to said gamut and maintaining said color's hue. The Examiner, however, argued that Mahy teaches these limitations (arguing one color value C3 reaches its limit at 0, dimensional order of 3-ink process is automatically reduced to 2-ink process because an

n-ink process is completely characterized by its colorant gamut with a number of colorant limitations; citing col. 14, liens 50-64 and col. 1, lines 49-58; and citing col. 14, lines 50-64 and col. 1, lines 49-58, arguing " a surface of colorant in a three-dimensional color space is mapped to the 2-dimensional color gamut boundaries, citing col. 12, lines 35-49, and Figs. 14A-14H disclose cross sections of pints and axes, citing col. 11, lines 30-50) allowing for an improved estimate of said color based on said reduced dimensional order (arguing Mahy discloses an example mathematical model of 3-ink process with one color value c1, reaches its limit at 0, dimensional order of 3-ink process is automatically reduced to 2-ink process because an n-ink process is completely characterized by its colorant gamut with a number of colorant limitations, citing col. 14, lines 50-64 and col. 1, lines 49-58); and thereby providing improved control for colors that are located external to said gamut (arguing "Mahy explored the method to improve control of colors that are located outside of the gamut, classes 2 and 4, citing col. 16, line 26 to col. 17, line 34) and maintaining said color's hue (citing col. 21, lines 10-31).

The Examiner argued Mahy's teaching is combinable to modify Shimizu reference for reducing dimensions (citing col. 13, lines 5-15), and by combining Mahy's teaching with Shimizu reference, dimensional order of 3-ink can be reduced to a two-ink process, which, can improve the out of gamut color control process. The Examiner further argued it would have bee obvious to one skilled in the art to modify the system of Shimizu to include that transforming said particular dimensional order of said color which was determined to have attained said gamut limit, in response to dynamically determining which color value among said plurality of color values has attained gamut limit; and thereafter automatically reducing said particular dimensional order through use of a dedicated gamut mapping function utilized to determine surface points and axes, thereby allowing for an improved estimate of said color based on said reduced dimensional order, thereby providing improved control for colors that are located external to said gamut and maintaining said color's hue as taught by Mahy reference.

The Examiner argued the motivation for doing so would have been to improve the control of an L*a*b* value of certain color which is outside a target color gamut and hence for better image reproduction quality, and further the mathematical model provided by Mahy could be implemented by one another with predictable results.

The Applicant respectfully disagrees with this assessment. First, the Applicant respectfully asserts the arguments above made in favor of claim 10 apply equally against the rejection of claim 1. In the interest of brevity those arguments are not repeated.

The Applicant respectfully disagrees that Mahy teaches the use of a dedicated gamut mapping function. First, the Examiner has failed to identify what specifically in the Mahy reference teaches or suggests a dedicated gamut mapping function.

The Examiner cited material giving "a color gamut description for a limitation on the sum of the three colorants of 250%" (this has literally no connection to a dedicated gamut mapping function); discussing the inversion of an n-ink process based on printer model (which is unrelated to the presently claimed invention in its entirety); a factual discussion on the properties of 3-dimensional space geometry; graphs representing "the cross section of the color gamut in CIELAB…"; and a description of those graphs. There is absolutely nothing in the preceding citations even remotely related to a gamut mapping function.

Specifically, nothing in the aforementioned material teaches or suggests, a dedicated gamut mapping function, the use of that function to automatically reduce dimensional order, or to determine surface and axes points. Citing a graph that inevitably will have surface points and axes points does not teach or suggest the specific limitations of the claim when the graph is wholly unrelated to a dedicated gamut mapping function or its use to reduce dimensional order. In order to establish prima facie obviousness the reference must specifically describe a dedicated gamut mapping function used as it is used in the present invention. That burden simply has not been met.

Additionally, the Examiner argued Mahy teaches "maintaining said color's hue", citing col. 21, lines 10-31. First, the words "maintained constant hue" do not appear in the reference as the Examiner suggests. Instead of evaluating the meaning of the material cited, the Examiner has simply found the word "hue" in the reference and therefore concluded independently that the Applicant's claim has been taught. The fact that this discussion includes the word hue does not mean that the reference teaches the specific limitations of the claim. As evidence, consider that fact that in the previous office action, the Examiner claimed the dedicated gamut mapping function, taught at col. 12, is the specific function that must be used to maintain constant hue. By citing col. 21 as teaching "maintained constant hue" the Examiner highlights the fact that the dedicated mapping function (pretending such a mapping function was taught by Mahy) <u>is not</u> used to maintain constant hue.

With respect to the first prong of the aforementioned Prima Facie Obviousness test, the Applicant reminds the Examiner that the language of the references may not be taken out of context and combined then without motivation, in effect producing the words of the claims (and sometimes, not even the words or concepts of the claims), without their meaning or context. Based on the arguments presented above the Applicant respectfully requests the rejection of claim 1, based on 35 USC 103, be withdrawn.

Regarding claim 2, the Examiner argued Shimizu discloses wherein a color sensor (arguing "measurement of L*a*b* values indicates that a color sensor must be used for color measuring, citing col. 11, lines 65-67 and col. 12, lines 1-19) is used in dynamically determining which color value among said plurality of color values has attained a gamut limit (arguing "Shimizu discloses a flow chart or algorithm which has a steps to determining shortest distance from boundary of color gamut in Figs. 7 & 9, to obtain CMY value corresponding to an L*a*b* value based on the measurement value of a patch outputted from the printer; thus the distance between a point whether inside or outside the gamut and the boundary of gamut must be dynamically determined utilizing a color sensor, citing col. 11, line 60 to col. 12, line 5).

The Applicant respectfully disagrees with this assessment. Per the Arguments made in favor of claim 10 above, the Applicant asserts the reference does not teach or suggest the use of a color sensor in the way described in the present invention. First, the Examiner cites col. 11, lines 65-67 and col. 12, lines 1-19 of Shimizu arguing this teaches use of a color sensor. This relates to the adoption by Shimizu of another patented method for creating color conversion tables. The Applicant is not asserting a color sensor is unique to the present invention. Indeed, color sensors are most assuredly used in many different types of applications. Rather, the Applicant is using the color sensor to determine which color value among the plurality of color values has reached the gamut limit, and not to create a color conversion table. In other words, in the present invention the color sensor itself is used to determine which color value has reached the gamut limit. The present claim does not include or consider color conversion tables in any capacity. Indeed, the reference highlights the fact that the present claim is different because no table is created.

The Examiner again appears to misunderstand the Applicant's argument. The Examiner continues to cite material in the reference that teaches the creation of a color conversion table. The present invention never teaches discusses, considers, describes, or even contemplates a color conversion table in any capacity. Discussion of a color conversion table with reference to the current invention has no applicability.

Finally, the Applicant believes the Examiner's rejection underscores the differences between the present invention and the reference. The Examiner first argued the creation of the color conversion table indicates a color sensor is used for measuring color. Note, the Applicant is claiming the color sensor is used to determine which color has attained gamut limit. The Examiner then cites an entirely different section of the reference arguing this material teaches an algorithm to determine distance from the gamut boundary. Thus, the Examiner has firmly established that two separate elements (the color conversion table serving to measure color, and the algorithm or flowchart) are operated independently. Assuming both these elements do teach what

the Examiner suggests (which the Applicant still does not accept) neither teaches or suggests an independent color sensor used to determine which colors have attained gamut limit. As such, with regard to this limitation of the present invention the Examiner has failed to establish prima facie obviousness. The Applicant therefore respectfully requests the rejection of claim 2 be withdrawn.

Regarding claim 3, the Examiner stated the claim recites identical features to claim 12. As such, the Applicant respectfully asserts the arguments made in favor of claim 12 apply equally to the rejection of claim 3. The Applicant respectfully requests the rejection of claim 3 be withdrawn.

Regarding claim 4, the Examiner stated the claim recites identical features to claim 13. As such, the Applicant respectfully asserts the arguments made in favor of claim 13 apply equally to the rejection of claim 4. The Applicant respectfully requests the rejection of claim 4 be withdrawn.

Regarding claim 5, the Examiner stated the claim recites identical features to claim 15. As such, the Applicant respectfully asserts the arguments made in favor of claim 15 apply equally to the rejection of claim 5. The Applicant respectfully requests the rejection of claim 5 be withdrawn.

Regarding claim 9, the Examiner argued Shimizu teaches a method, comprising: automatically providing a plurality of color values as input to an image processing device (arguing "L*a*b* values based on the measurement of a patch outputted from the printer corresponding to CYM values are as input initial value; since the L*a*b* values obtained and inputted in the process are not manually preformed, thus data is automatically provided as input to the image processing device citing Figs. 5 & 7 and 18 & 19, col. 10, lines 12-16), wherein said image processing device is under a control of a three-dimensional order (citing S21 of Fig. 7 and col. 12, lines 30-42); dynamically determining utilizing a color sensor (citing col. 11, lines 65-67 and col. 12, lines 1-19 and col. 11, line 60 to col. 12, line 5) and color among a plurality of colors has attained said gamut limit (citing Figs. 6A-B and 8A-B, col. 14, lines 39 – col. 16, line 34), wherein said determined color is comprised of a plurality of colors cyan, magenta, and yellow representing

said three-dimensional order (citing s21 of Fig. 7, col. 11, line 65 – col. 12, line 19).

The Examiner admitted Shimizu does not teach that transforming said three dimensional order in response to dynamically determining which color among said plurality of three colors, cyan, magenta, and yellow has attain said gamut limit; and automatically reducing said three dimensional order thereby providing improved control for colors that are located external to said gamut.

The Examiner argued Mahy teaches transforming said three-dimensional order, in response to dynamically determining which color value among said plurality of three color values has attained said gamut limit (citing col. 14, lines 34-64 and col. 1, lines 49-58); and automatically reducing said three-dimensional order, thereby providing improved control for colors that are located external to said gamut (citing col. 12, lines 36-64).

The Examiner argued Mahy's teaching is combinable to modify Shimizu reference for reducing dimensions (citing col. 13, lines 5-15) and by combining Mahy's teaching with Shimizu reference, dimensional order of 3-ink can be reduced to a two-ink process, which, can improve the out of gamut color control process. The Examiner further argued having a system of Shimizu and then given the well-established teaching of Mahy, it would be obvious to one skilled in the art to modify the service portal system of Shimizu to include transforming said three-dimensional order, in response to dynamically determining which color value among said plurality of three color values has attained said gamut limit and automatically reducing said three-dimensional order, thereby providing improved control for colors that are located external to said gamut as taught by Mahy since doing so would improve the control of L*a*b value of a certain color which is outside a target color gamut, and further the mathematical model provided by Mahy could be implemented for one another with predictable results.

The Applicant respectfully disagrees with this assessment. The Applicant respectfully asserts the previous arguments made in favor of claims

1 and 10 apply equally against the Examiner's rejection of claim 9. In the interest of brevity those arguments are not repeated.

In addition, the Applicant respectfully disagrees col. 11, line 65 to col. 12, line 19 teaches the limitation that the colors that are determined beyond the gamut limit are comprised of cyan, magenta and yellow. Once again, it is not enough that the reference discusses the colors, cyan, magenta, and yellow. In order to establish prima facie obviousness it is necessary to show such colors were those dynamically determined to be beyond the gamut limit. As the Examiner will note, the material cited is diametrically opposite to this limitation. The cited material actually describes a color conversion table for converting L*a*b* colors to CMY values, <u>regardless of their location in or outside of the color gamut</u>. The reference goes on to specify a second method is used to determine if colors are inside the gamut, <u>and is specific that those colors include L*a*b* colors not CMY colors.</u> Thus, the reference actually teaches directly away from the limitations of the present claims. The Applicant therefore respectfully request the rejection of claim 9 be withdrawn.

Shimizu in view of Mahy and further in view of Terekhov

Claim 6 stands rejected under 35 USC 103(a) as being unpatentable over Shimizu in view of Mahy and further in view of Terekhov (US2004/0096104).

Regarding claim 6, the Examiner admitted Shimizu does not disclose wherein a ray-based approach consisting of a ray being drawn from a desired color to a point on a neutral axis through said gamut limit is used to perform said gamut mapping. The Examiner argued Terekhov teaches these limitation (citing figs 8A, 8B and 9, arguing "a ray-based approach consisting of a ray from L*-axis, a neutral axis through gamut limit is used for gamut mapping, Par. 63").

The Examiner argued it would have been obvious to have modified Shimizu and Mahy to include the above teachings of Terekhov to improve color mapping of gamut because gamut mapping requires coordinates of the points having the maximal chromaticity for a current gamut boundary (citing paragraph 71).

The Applicant respectfully disagrees with this assessment. The Examiner cites Figs. 8A, 8B and 9 as teaching the ray based approach described in claim 6. However, the specification of that invention states specifically that Fig. 8A illustrates distribution rays in a plane, Fig. 8B illustrates points where those rays intersect the boundary of the device gamut, and Fig. 9 illustrates an example of ray-triangle-inclusion. Nothing in this description suggests the approach of drawing a ray from a point <u>through a neutral axis</u> as is specifically claimed in the present invention. Indeed the Examiner's statement that the approach consists of a ray "<u>from</u> L*-axis …" <u>highlights the fact that in the reference the ray originates at the axis and not at the desired color</u>. As such, the Examiner's own words have established the reference fails to teach or suggest a ray based approach where the ray <u>originates at a desired color and is traced through a neutral axis</u>.

Further, the Examiner argued the combination of Shimizu and Mahy with Terekhov would yield the predictable result of gamut mapping. However, the Examiner previously argued that Mahy teaches a gamut mapping function. Pretending Mahy had established a gamut mapping function, there is no motivation to substitute that function for another. Mahy is directed to describing gamut specifically using a method based on dividing domain of the device into a number of subdomains such that the union of subdomains equals the total color gamut of the color reproduction device (see Abstract). As such, the Examiner must establish, through citation, some expectation of success in using the claimed ray based approach within the framework of the method described in Mahy. In other words, there is no reason to believe including a ray based gamut mapping in Mahy would improve the method described in Mahy.

Further, the fact that Shimizu does not use a gamut mapping function at all, which means there is absolutely no reason to believe applying a gamut mapping function to that already functioning device would yield any practicable result. Simply stating that including a new element in an old invention will work is not enough to establish obviousness. The Examiner must further explain why such a combination would be obvious. In this case, no person skilled in the art would expect any improvement on the Mahy or Shimizu inventions by haphazardly including a ray based gamut mapping function.

The Applicant respectfully requests the rejection of claim 6, based on 35 USC §103 be withdrawn.

Shimizu in view of Mahy and Terekhov and further in view of Holub

Claims 7 and 8 stand rejected under 35 USC 103(a) as being unpatentable over Shimizu in view of Mahy and Terekhov and further in view of Holub (US 6,750,992).

Regarding claim 7 and 8, the Examiner admitted Shimizu, Mahy, and Terekhov do not teach wherein said color sensor comprises an offline sensor and an inline sensor. The Examiner argued Holub teaches wherein said color sensor comprises an offline sensor (citing Fig. 3A and col. 11 lines 66-67 and col. 12, lines 1-19) and an inline sensor (citing figs. 3B-C, col. 15, lines 42-67 and col. 16, lines 1-24). The Examiner argued it would have been obvious to modify Shimizu, Mahy, and Terekhov to include the above claimed limitations of Holub to improve communication, control and quality of color reproduction (citing col. 3, lines 3-15 without citing which reference).

The Applicant respectfully disagrees with this assessment. Particularly, the Applicant strongly disagrees col. 11, line 65 –col. 12, line 19 ever discusses an offline sensor as the Examiner claims. Likewise, Fig. 3A simply does not offer any teaching of an offline sensor of any kind. This is

supported by the fact that none of the cited material and indeed, none of the elements in Fig. 3A are labeled as "offline sensor". The material cited gives a generalized overview of the system of nodes used in that invention. While the Applicant assumes this is the material to which the Examiner is referring, the Applicant still asserts this does not teach an offline sensor in any capacity.

Likewise, the material the Examiner cites to teach an inline sensor does not read on the present invention. The reference describes a sensor "built in" to a rendering device. The inline sensor, described in the present invention is not built into a rendering device. The reference goes on to explain the preferred method of such a sensor is a faceplate for a computer screen. This has literally no relation to the technology being described in the present invention. The inline sensor described in the present invention is intended to be an independent element included in the system as described, not a faceplate on a computer screen.

Finally, the Applicant asserts there is no motivation for the inclusion of the sensor described in Holub to Mahy as required to demonstrate prima facie obviousness. The Examiner admits Mahy and Shimizu do not teach an inline or offline color sensor. This is specifically because the art in Mahy operates without the need for such a sensor. In fact, the Examiner has admitted Mahy only teaches a mathematical model (see rejection of claim 10 where Examiner states "Mahy discloses an example mathematical model…"). There is absolutely no reason to expect including hardware like an inline or offline sensor in a mathematical model would yield any improvement in the mathematical model. Thus, the Examiner is at least required to explain how the inclusion of an inline sensor would improve the mathematical model described in Mahy.

In addition, the operation described in Shimizu would not benefit from the inclusion of an inline or offline sensor as described by Applicant's invention, its function only requires a sensor generally. That means the technique described in Mahy and Shimizu would not be improved by adding

an inline or offline sensor. Thus, one skilled in the art would have no motivation to incorporate the Holub sensor in Shimizu or Mahy.

In addition, there is not a reasonable expectation of success as required for a showing of prima facie obviousness. The addition of a sensor to Mahy would add nothing to the invention because that process already functions independent of a sensor. In other words, including a sensor, inline or offline, in a mathematical model <u>does not yield anything but a sensor sitting next to a mathematical model.</u> By contrast the use of the sensor as described in claims 7 and 8 is an essential component in the iterative process (another feature both Mahy and Shimizu lack) by which the invention operates. Simply put, adding a sensor to Mahy would not improve or change the functionality of that invention. In addition, the Examiner cites "improve[d] communication, control and quality of color reproduction as motivation for the inclusion of the Holub sensor in Shimizu. However, the Examiner has failed to explicitly explain <u>how</u> the inclusion of an inline or offline sensor in the Shimizu reference would improve its function over the sensor already used, as required by the holding in *KSR Int'l v. Teleflex Inc*. how would including an inline or offline sensor in Shimizu change the functionality of that invention? There is no reasonable expectation that the combination of the Holub sensor with the Mahy or Shimizu invention would successfully produce Applicant's invention. The Examiner's standard explanation that this combination would provide "improved controls for colors of certain L*a*b values" and that they could be "implemented for one another with predictable results" still fails to offer the essential "how" explanation required under the holding in *KSR Int'l v. Teleflex Inc*.

The Applicant notes it appears the Examiner has wholly ignored this argument as in the face of overwhelming evidence, the rejection remains unmodified and no response to these arguments was provided. The Applicant respectfully asserts the above arguments should be given full consideration as the references clearly do not meet the requirements of prima facie obviousness. The Applicant respectfully requests the rejection of claims 7 and 8 be withdrawn.

Shimizu in view of Mahy and further in view of Holub

Claims 13-14 and 17-18 stand rejected under 35 USC 103(a) as being unpatentable over Shimizu in view of Mahy, and further in view of Holub.

Regarding claim 13, the Examiner admitted Shimizu does not teach a transformation module further comprises a compensation module for reducing said three-dimensional order to a two-dimensional order using a standard International Color Consortium (ICC) framework. The Examiner argued Mahy teaches such a transformation module (citing col. 12, lines 19-32).

The Examiner argued Holub teaches compensation using a standard ICC framework (arguing "compensation function LUTs to compensate for any non-linearities between light intensity, citing col. 20, lines 4-34, and using the internationally accepted standard, col. 44, lines 65-66).

The Examiner therefore argued it would have been obvious to one of ordinary skill in the art at the time of invention to have modified Shimizu to include said transformation module further comprising a transformation module for reducing said three-dimensional order to a two-dimensional order taught by Mahy because it helps to determine the exact boundaries of the color gamut per lightness level from a set of discrete points (citing col. 4, lines 17-43), and then to modify the aforementioned combination with the claimed teaching of Holub above. The Examiner argued the motivation for this combination is to compensate color value difference with a well recognized standard which quantifies color in terms of what normal humans see, rather than in terms of a specific samples or instances of color produced by particular equipment, so that a predictable success of controlling out-of-gamut memory and index color can be achieved.

The Applicant respectfully disagrees with this assessment. First, the Applicant again notes, the material cited in the Mahy reference simply offers an explanation of the characteristics of three dimensional space. It does not

teach a module, as described in the present invention, in any capacity. The cited language in Mahy cannot be construed to teach or suggest a "transformation module", which is defined by Mahy as a mathematical function that expresses color value (col. 1, lines 44-50 of Mahy). This means even by the standard defined in Mahy, this is not a "transformation module" and certainly not a "compensation module" as claimed. Being that there is no discussion in col. 12, lines 19-23 of Mahy, of any manifestation of a transformation module, or said module operating to reduce a three-dimensional order to a two-dimensional order. The Applicant asserts Mahy does not teach or suggest the limitations of claim 13 necessary to establish prima facie obviousness. Further, the Examiner has failed to offer any citation to material teaching or suggesting a <u>compensation module</u> in the Holub reference.

The Examiner in fact argued Holub teaches "compensation function LUTs to compensate for any non-linearities between light intensity". However, as the Examiner will note <u>this is not the limitation being claimed</u>. Rather, the present claim describes a compensation module as part of a transformation module used <u>to reduce a three-dimensional order to a two dimensional order</u>. To reiterate, <u>the Applicant is not claiming the "option of converting color transformational components of the Virtual Proof into standardized file formats</u>"; rather the Applicant is claiming a compensation module for reducing said three-dimensional order to a two-dimensional order <u>using a standard International Color Consortium (ICC) framework</u>. The Examiner has once again found words in the reference and matched them up with words in the claims. The fact that the reference and the claims share the words "International Color Consortium" is not enough to establish that the references teach a compensation module <u>that uses an ICC framework to convert a three-dimensional order to a two dimensional order</u>. The context of the reference to the ICC in Holub is completely removed from any notion even slightly comparable to that being described in claim 13.

Further, the Examiner has cited col. 4, lines 17-43 in an effort to establish a motivation for the combination of Mahy and Shimizu. The

Examiner claims such a combination is obvious because it helps to determine the exact boundaries of a color gamut resulting in the control of out-of-gamut memory and index colors. The Examiner has still failed to establish what suggests the inclusion of the mathematical model in Mahy would yield an improvement to Shimizu. First, including a mathematical model in any invention would not produce any result since the model is not a patentable limitation. Further, Shimizu is not designed to make use of order reduction therefore including an order reducing transformation in Shimizu would not improve that invention.

While the Examiner explains "the motivation is to compensate color value difference with a well recognized standard which quantifies color in term s of color produced by particular equipment", this represents a conclusion drawn by the Examiner, not a conclusion suggested explicitly in the references, as required by the holding in KSR Int'l v. Teleflex Inc.

Likewise the references lack any discussion of the motivation for the combination of Holub with the references. The material cited by the Examiner discussing conversion of file formats is so far removed from the material being described in either Mahy or Shimizu it is hard to image a scenario where the cited material could be included in either of those inventions. Based on the arguments presented above the Applicant respectfully requests the rejection of claims 13, based on 35 USC 103, be withdrawn.

Regarding claim 14, the Examiner admitted that Shimizu does not teach a transformation module which reduces a three-dimensional order to a two-dimensional order in response to determining which colors among said plurality of colors have attained said gamut limit.

The Examiner argued Mahy teaches such a transformation (citing Fig. 3; col. 12, lines 19-32; and col. 14, lines 34-46). Therefore, the Examiner argued it would have been obvious to one of ordinary skill in the art at the time of invention to have modified Shimizu to include a transformation module that reduces a three-dimensional order to said two-dimensional order in response to determining which colors among said plurality of colors have

attained said gamut limit taught by Mahy because it helps to determine the exact boundaries of the color gamut per lightness level from a set of discrete points (citing col. 4, lines 17-43). Therefore, by combining Shimizu with Mahy, a predicable success of controlling out-of-gamut memory and index color can be achieved.

The Applicant respectfully disagrees with this assessment. The transformation described in Mahy is used to determine contours that ultimately are used to define the color gamut. By contrast, the reduction in claim 14 is in response to the dynamic determination of which of a specific plurality of colors has attained a gamut limit. Mahy and claim 14 share a similar means to a different end. The only element the cited language of Mahy and claim 14 actually share is the use of the word "transformation". As explained above, col. 12, lines 19-32 do not describe a transformation module <u>even by the definition of "transformation module" provided by Mahy</u>. The cited language does not describe a transformation module in any capacity.

Likewise, Fig. 3 is described as "the colorant domain of the boundary 2-ink process with c3=0% of a 3-ink process with a total colorant limitation of 250%. This has literally, no teaching or suggestion of order reduction based on the dynamic determination of which color has attained a gamut limit as claimed.

Finally, col. 14, lines 34-64 high light, as discussed above, that Mahy function differently than the present invention. The material cited teaches "a color gamut description … for a limitation on the sum of three colorants of 250%". Again, this simply fails to teach the specific limitations of claim 14 in any capacity.

The Examiner concluded by citing col. 4, lines 17-43 in an effort to establish a motivation for the combination of Mahy and Shimizu. However, the cited language offers absolutely no explanation of how the order reduction described in claim 13 would improve the Shimizu invention, as required by the holding in KSR Int'l v. Teleflex Inc. The Applicant

respectfully asserts this lack of explanation is the same as that described previously.

Therefore, the Applicant argues all the limitations of claim 14 are not taught or suggested by Mahy and that claim 14 is therefore not obvious. The Applicant respectfully requests, in light of the above argument, that the rejection of claim 14, based on 35 USC 103, be withdrawn.

Regarding claims 17 and 18, the Examiner admitted Shimizu and Mahy fail to teach a color sensor comprised of an offline sensor and an inline sensor.

The Examiner argued "Holub teaches wherein said color sensor comprises an offline sensor (citing Fig. 3A, col. 11, lines 66-67; and col. 12, lines 1-19) and an inline sensor (citing Fig. 3B, col. 15, lines 42-67; and col. 16, lines 1-24)".

The Examiner argued it would have been obvious to one skilled in the art at the time of the invention to modify Shimizu and Mahy to include an offline and an inline sensor taught by Holub to improve communication, control and quality of color reproduction (citing col. 3, lines 3-15). The Examiner therefore argued by combining Shimizu and Mahy with Holub, a predictable success of controlling out-of-gamut memory and index color can be achieved.

The Applicant respectfully disagrees with this assessment. The Applicant respectfully asserts the arguments made in favor of claims 7 and 8 apply equally against the rejections of claims 17 and 18. The Applicant respectfully requests the rejection of claims 17 and 18 based on 35 U.S.C. §103 be withdrawn.

V. Conclusion

In view of the foregoing discussion, the Applicant has responded to each and every rejection of the Official Action. The Applicant has clarified the structural distinctions of Applicant's invention via the discussion provided herein. Applicant respectfully requests the withdrawal of the rejections under 35 U.S.C. §103 based on the preceding remarks. Reconsideration and allowance of Applicant's application is also respectfully solicited. Applicant is also open to any suggestions from the Examiner, which the Examiner believes would place the Application in condition for allowance.

Should there be any outstanding matters that need to be resolved, the Examiner is respectfully requested to contact the undersigned representative to conduct an interview in an effort to expedite prosecution in connection with the present application.

Respectfully submitted,

Kermit Lopez

Dated: September 8, 2009

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